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Patent

What is claimed is:

1. A bladder for use with a strap to carry a load comprising, in combination:

a first longitudinal chamber;

a second longitudinal chamber spaced apart from and substantially parallel to the first

longitudinal chamber; and

a plurality of transverse chambers, each transverse chamber being connected at a first

end thereof to the first longitudinal chamber and at a second end thereof to the second

longitudinal chamber, in fluid communication with the first and second longitudinal

chambers, and having a longitudinal axis extending substantially parallel to the longitudinal

axis of the other transverse chambers.

2. The bladder of claim 1, further comprising a flange portion surrounding the first and

second longitudinal chambers.

3. The bladder of claim 2, further comprising

an elongate first flange aperture formed in the flange portion proximate an endmost

transverse chamber; and

an elongate second flange aperture formed in the flange proximate an opposed

endmost transverse chamber and having a longitudinal axis extending substantially parallel to

a longitudinal axis of the first flange aperture.

4. The bladder of claim 3, wherein the longitudinal axis of each of the first and second

flange apertures is disposed at an angle with respect to a longitudinal axis of the bladder.

- 5. The bladder of claim 1, further comprising a plurality of elongate transverse apertures, each transverse aperture disposed between adjacent transverse chambers and having a longitudinal axis extending substantially parallel to a longitudinal axis of each of the other transverse apertures.
- 6. The bladder of claim 5, wherein the longitudinal axis of each transverse aperture is disposed at an angle with respect to a longitudinal axis of the bladder.
- 7. The bladder of claim 1, further comprising a plurality of elongate transverse straps, each strap disposed between adjacent transverse chambers, being formed by a pair of substantially parallel slits formed in the bladder, and having a longitudinal axis extending substantially parallel to a longitudinal axis of each of the other elongate straps.
- 8. The bladder of claim 7, wherein the longitudinal axis of each elongate strap is disposed at an angle with respect to a longitudinal axis of the bladder.
- 9. A strap for a device carrying a load comprising, in combination:
  - a pad having a central aperture formed therein;
- a fluid-filled bladder positioned within the central aperture and secured to the pad; and
  - a length of webbing slidably connected to first and second ends of the pad.

- 10. The strap of claim 9, wherein the bladder comprises
  - a first longitudinal chamber;
- a second longitudinal chamber spaced apart from and substantially parallel to the first longitudinal chamber; and
- a plurality of transverse chambers, each transverse chamber being connected at a first end thereof to the first longitudinal chamber and at a second end thereof to the second longitudinal chamber, in fluid communication with the first and second longitudinal chambers, and having a longitudinal axis extending substantially parallel to the longitudinal axis of the other transverse chambers.
- 11. The strap of claim 10, further comprising a flange portion surrounding the first and second longitudinal chambers.
- 12. The strap of claim 11, wherein the flange portion is secured to the pad.
- 13. The strap of claim 11, wherein the flange portion is sewn to the pad.
- 14. The strap of claim 11, further comprising

an elongate first flange aperture formed in the flange portion proximate an endmost transverse chamber; and

an elongate second flange aperture formed in the flange proximate an opposed endmost transverse chamber and having a longitudinal axis extending substantially parallel to a longitudinal axis of the first flange aperture.

- 15. The strap of claim 14, wherein the longitudinal axis of each of the first and second flange apertures is disposed at an angle with respect to a longitudinal axis of the bladder.
- 16. The strap of claim 10, further comprising a plurality of elongate transverse apertures, each transverse aperture disposed between adjacent transverse chambers and having a longitudinal axis extending substantially parallel to a longitudinal axis of each of the other transverse apertures.
- 17. The strap of claim 16, wherein the longitudinal axis of each transverse aperture is disposed at an angle with respect to a longitudinal axis of the bladder.
- 18. The strap of claim 16, wherein the webbing is woven through at least one of the transverse apertures.
- 19. The strap of claim 10, further comprising a plurality of elongate transverse straps, each strap disposed between adjacent transverse chambers, being formed by a pair of substantially parallel slits formed in the bladder, and having a longitudinal axis extending substantially parallel to a longitudinal axis of each of the other elongate straps.
- 20. The strap of claim 19, wherein the longitudinal axis of each elongate strap is disposed at an angle with respect to a longitudinal axis of the bladder.

- 21. The strap of claim 19, wherein the web passes between the bladder and at least some of the straps.
- 22. The strap of claim 9, further comprising a layer of compressible material positioned adjacent the bladder.
- 23. A bag carrying device comprising, in combination:
  - a bag;
  - a length of webbing connected at opposed ends thereof to the bag;
- a pad having a central aperture formed therein, the length of webbing slidably secured to first and second ends of the pad;
- a fluid-filled bladder positioned within the central aperture and secured to the pad, the bladder comprising
  - a first longitudinal chamber;
  - a second longitudinal chamber spaced apart from and substantially parallel to the first longitudinal chamber; and
  - a plurality of transverse chambers, each transverse chamber being connected at a first end thereof to the first longitudinal chamber and at a second end thereof to the second longitudinal chamber, in fluid communication with the first and second longitudinal chambers, and having a longitudinal axis extending substantially parallel to the longitudinal axis of the other transverse chambers;
  - a flange portion surrounding the first and second longitudinal chambers and secured to the pad;

a plurality of elongate transverse apertures, each transverse aperture disposed between adjacent transverse chambers and having a longitudinal axis extending substantially parallel to a longitudinal axis of each of the other transverse apertures and at an angle with respect to a longitudinal axis of the bladder.

## 24. A bladder for use with a strap to carry a load comprising, in combination:

a serpentine chamber formed of plurality of longitudinal chambers and a plurality of transverse chambers, each transverse chamber being connected at ends thereof to, and in fluid communication with, corresponding longitudinal chambers;

a flange portion surrounding the serpentine chamber;

an elongate first flange aperture formed in the flange portion proximate an endmost transverse chamber; and

an elongate second flange aperture formed in the flange proximate an opposed endmost transverse chamber and having a longitudinal axis extending substantially parallel to a longitudinal axis of the first flange aperture, a longitudinal axis of each of the first and second flange apertures being disposed at an angle with respect to a longitudinal axis of the bladder;

a plurality of elongate transverse apertures, each transverse aperture disposed between adjacent transverse chambers and having a longitudinal axis extending substantially parallel to a longitudinal axis of each of the other transverse apertures, the longitudinal axis of each transverse aperture being disposed at an angle with respect to a longitudinal axis of the bladder.

- 25. A bladder for use with a strap to carry a load comprising, in combination: at least one longitudinal chamber;
- a plurality of transverse chambers, each transverse chamber being connected at a first end thereof to at least one longitudinal chamber, being in fluid communication with the at least one longitudinal chamber and each other transverse chamber, and having a longitudinal axis extending substantially parallel to the longitudinal axis of the other transverse chambers.
- 26. The bladder of claim 25, wherein the at least one longitudinal chamber and the plurality of transverse chambers are connected to form a substantially serpentine bladder.
- 27. The bladder of claim 25, further comprising a means for providing a twist in the bladder.